

We claim:

1. An apparatus for segmenting a plurality of strips of food comprising a rotating segmenting roller having on its surface a plurality of circumferential lanes each of which receives separate strips of food, each lane containing a series of circumferentially spaced radially projecting knife edges that are disposed at least substantially parallel to the axis of rotation of the roller, wherein said knife edges segment a strip of food into a plurality of segments so that the segmented strips of food can be rolled into a roll without separating the segments from the strip of food.

2. An apparatus according to claim 1, wherein said knife edges upon rotation of said roller, segment or perforate multiple at least substantially parallel continuous strips of a flowable food each supported on a strip of support material, thus forming segmented or perforated strips of food from which a consumer may readily remove or separate one or more segments from the rest of said food strips by pulling said one or more segments and the rest of said food strip apart with the fingers.

3. An apparatus according to claim 1 wherein each circumferential lane on the surface of said roller further comprises at least one embossing or imprinting cup defined by a radially protruding knife edge that is adapted to form a definite shape in a substrate.

4. An apparatus according to claim 3 wherein said circumferentially spaced knife edges are disposed between said embossing or imprinting cups.

5. An apparatus according to claim 3 wherein said at least one embossing or imprinting cup forms part of a design within a segment of a strip of food and the remainder of the design is formed in a separate segment or segments of said strip of food.

6. An apparatus according to claim 1 wherein said series of circumferentially spaced knife edges are spaced to segment or perforate a substrate at a predetermined interval.

7. An apparatus according to claim 2 wherein said knife edges are spaced so as to segment or perforate each of said multiple strips of food at a predetermined interval.

8. An apparatus according to claim 2 further comprising in each of said parallel circumferential lanes at least one embossing or imprinting cup defined by a knife edge that protrudes radially from said surface to form a definite design in each of said strips of food as the roller rotates.

9. An apparatus according to claim 2 further comprising an anvil surface on top of which said multiple parallel strips of food are conveyed and which forms a gap together with the underside of said rotating roller through which said multiple parallel strips pass to effectively segment each of said multiple strips.

10. An apparatus according to claim 9 wherein said anvil surface comprises the upper surface of a carrier conveyor.

11. An apparatus according to claim 2 wherein said roller scores or cuts each of said multiple parallel strips of food without scoring or cutting said strips of support material.

12. An apparatus according to claim 2 further comprising at least one guide adapted to preserve an at least substantially parallel orientation of said multiple continuous at least substantially parallel strips of food supported on a support material during processing.

13. An apparatus according to claim 12 wherein said guide comprises a metal spacer bar.

14. An apparatus according to claim 1 wherein said circumferentially spaced knife edges are continuous knife edges.

15. An apparatus according to claim 1 wherein said circumferentially spaced knife edges are discontinuous knife edges.

16. An apparatus according to claim 14 wherein said continuous knife edges are in the shape of a straight edge, a lightning bolt, a letter, a number, a musical note or symbol, a mathematical symbol, a border of a puzzle piece, a matching tab and socket or plug-in design, a squiggly or crooked line, or a combination thereof.

17. An apparatus according to claim 15 wherein said discontinuous knife edges are in the shape of a serrated or a notched straight edge that is about 15% to about 50% nicked.

18. An apparatus according to claim 1 wherein said circumferentially spaced knife edge has a cross section which is substantially flat or rounded.

19. An apparatus according to claim 10 further comprising cooling coils located underneath of said carrier conveyor which carry chilled water, and wherein said carrier

conveyor is perforated to effectively cool each of said multiple strips of food supported on a support material during processing.

20. An apparatus according to claim 1 wherein said roller comprises from about 8 to about 16 parallel circumferential lanes.

21. A method of making a multiplicity of segmented rolled food products from multiple, continuous at least substantially parallel strips of an extruded flowable food product wherein each of the food strips is supported on a strip of a pre-slit support material comprising:

conveying while cooling multiple, continuous, at least substantially parallel strips of a flowable food product supported on a support material, segmenting or perforating each of said food strips across the entire width of the food strip while the food is still flowable to form a multiplicity of segmented food strips, cutting all the way through each of said segmented food strips and its respective support strip to form a leading end and a trailing end of each support strip, and rolling each of said segmented and cut food strips around said leading edge to form a multiplicity of rolled food products.

22. A method of making a multiplicity of rolled food products according to claim 21 wherein said segmenting or perforating step further comprises embossing or imprinting to form a definite shape in each of said strips of food.

23. A method of making a multiplicity of rolled food products according to claim 22 wherein said embossing or imprinting results in at least one shape disposed within a single segment of each said strips of food.

24. A method of making a multiplicity of rolled food products according to claim 22 wherein said embossing or imprinting results in a shape which is divided between at least two separate segments of at least one of said strips of food.

25. A method of making a multiplicity of rolled food products according to claim 24 wherein said two separate segments are not adjacent each other.

26. A method of making a multiplicity of rolled food products according to claim 21 wherein said segmenting or perforating comprises feeding said multiple continuous strips of food supported on a support material into a gap defined by an upper anvil surface and the underside of a rotating segmenting roller having on its surface a plurality of circumferential lanes each of which contains a series of circumferentially

spaced radially projecting knife edges that are disposed for cutting entirely across the width of the strips of food.

27. A method of making a multiplicity of rolled food products according to claim 26 wherein in said segmenting or perforating said radially projecting knife edges are spaced so as to segment each of said strips of food at a predetermined interval.

28. A method of making a multiplicity of rolled food products according to claim 26 which further comprises guiding each of said multiple strips of food supported on a strip of support material so as to keep them at least substantially parallel to and separate from each other during processing.

29. A method of making a multiplicity of rolled food products according to claim 28 wherein in said guiding each of said multiple strips is conveyed through at least one guide located in said upper anvil surface.

30. A method of making a multiplicity of rolled food products according to claim 21 which further comprises guiding each of said multiple parallel strips of food supported on a strip of support material so as to keep them at least substantially parallel to and separate from each other during processing.

31. A method of making a multiplicity of rolled food products according to claim 21 wherein said segmenting or perforating effectively segments each of said multiple strips of food without segmenting or perforating said strip of support material.

32. A method of making a multiplicity of rolled food products according to claim 26 wherein edible adhesive is applied near the trailing end of each of said strips of food and thereby holds the trailing end of the product against the next adjacent layer in the rolled food product.

33. A method of making a multiplicity of rolled food products according to claim 21 wherein said strips of food product are cooled to a temperature of from about 75° F to about 90° F for said segmenting or perforating.

34. A method of making a multiplicity of rolled food products according to claim 26 wherein said strips of food product are cooled to a temperature of from about 75° F to about 90° F for said segmenting or perforating.

35. A method of making a multiplicity of rolled food products according to claim 26 wherein said circumferentially spaced knife edges are continuous knife edges.



36. A method of making a multiplicity of rolled food products according to claim 26 wherein said circumferentially spaced knife edges are discontinuous knife edges.

37. A method of making a multiplicity of rolled food products according to claim 35 wherein said continuous knife edges are in the shape of a straight edge, a lightning bolt, a letter, a number, a musical note or symbol, a mathematical symbol, a border of a puzzle piece, a matching tab and socket or plug-in design, a squiggly or crooked line, or a combination thereof.

38. A method of making a multiplicity of rolled food products according to claim 36 wherein said discontinuous knife edges are in the shape of a serrated or a notched straight edge that is about 15% nicked to about 50% nicked.

39. A method of making a multiplicity of rolled food products according to claim 26 wherein said circumferentially spaced knife edge is rounded or substantially flat in cross-section.

40. A method of making a multiplicity of rolled food products according to claim 21 wherein from about 8 to about 16 multiple continuous strips of food supported on a strip of support material are processed simultaneously.

41. A segmented rolled food item comprising a strip of support material having leading and trailing ends defining its length and a definite width and a strip of food supported upon the strip of support material and having a length which does not extend beyond the leading and trailing ends of the support material and a width no wider than the width of the support material, wherein the item is rolled around said leading end into a roll having multiple rotations with the strip of support material located on the outside of the roll, and wherein said strip of food is segmented to enable a consumer to readily remove one or more segments of said strip of food from the rest of said strip of food by pulling said one or more segments and the remainder of said strip apart with the fingers.

42. A rolled food item of claim 41 wherein said strip of food is embossed or imprinted with shapes.

43. A rolled food item of claim 41 wherein said food is a sweetened dehydrated fruit puree which contains substantially no corn syrup.

44. A rolled food item of claim 43 wherein the strip of food comprises a dehydrated, extruded food product having a solids content of between about 84 % by weight and about 92% by weight when extruded.

45. A rolled food item of claim 41 wherein the segments of said strip of food are separated by perforations extending across the width of said strip.

46. A rolled food item of claim 41 wherein the strip of support material is formed of paper.

47. A rolled food item of claim 45 wherein said strip of support material is free of segmenting.

48. A rolled food item of claim 41 wherein the length of the strip of food is equal to the length of the support material.

49. A rolled food item of claim 41 wherein the strip of food is a strip of sweetened dehydrated puree of a thinness requiring external support and which dries to form a non-tacky film.

50. A rolled food item of claim 42 wherein the strip of food is embossed or imprinted with shapes to provide a boss or imprint contained entirely within a single segment.

51. A rolled food item of claim 42 wherein the strip of food is embossed or imprinted with shapes to provide a divided boss or imprint contained partially within a first segment and partially within a second segment.

52. A rolled food item of claim 51 wherein said first segment is not adjacent to said second segment, and wherein said first and second segments can be matched to provide the entire shape.

53. A rolled food item of claim 41 wherein the strip of support material is free of segmenting.

54. A rolled food item of claim 41 wherein said segments of said strip of food are separated by a continuous design extending all the way across the width of said strip of food.

55. A rolled food item of claim 54 wherein said continuous design is a straight line, a lightning bolt, a letter, a number, a musical note or symbol, a mathematical symbol, a border of a puzzle piece, a matching tab and socket or plug-in design, a squiggly or crooked line, or a combination thereof.

56. A rolled food item of claim 45 wherein said perforations leave uncut portions amounting to about 15% to about 50% of the width of said strip of food.

57. A rolled food item of claim 42 wherein the strip of support material is free of embossing, imprinting, and segmenting.

58. A rolled food item of claim 42 wherein the strip of food is embossed or imprinted with shapes to provide a divided boss or imprint contained partially within a first segment, partially within a second segment and partially within a third segment, and wherein the divided boss or imprint within said first, second and third segments can be separated from the strip and matched to provide the entire shape.